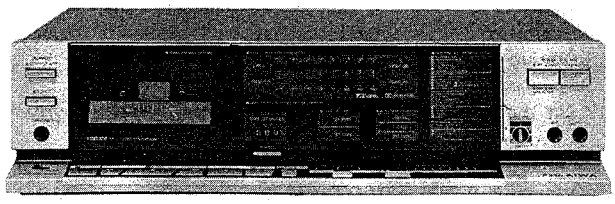
AIWA®

S/M Code No. 83-018
DATA OF ISSUE 6/1983

SERVICE MANUAL

STEREO CASSETTE DECK

MODEL NO.
AD-F330



TYPE. H,HU,U,E,K,G,Z

SPECIFICATIONS

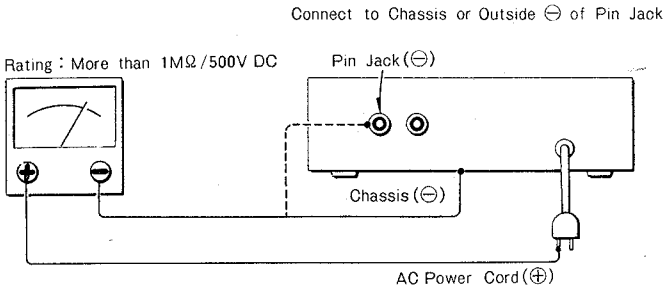
Semiconductors:	11 ICs, 30 transistors, 10 diodes, 25 LED's
Power supply:	H, HU models AC 120V/220V/240V switchable 50/60 Hz U model AC 120V, 60 Hz E, Z models AC 220V, 50/60 Hz K. G models AC 240V, 50/60 Hz
Power consumption:	16 W
Dimensions:	420(W) x 110(H) x 280(D) mm [16–1/2" x 4–3/8" x 11–1/4"]
Weight:	4.5 kg (9.91 lbs)
Track type:	4 tracks 2 channels
Tape speed:	4.8 cm/s (1–7/8 ips) ± 1.5%
Wow & flutter:	0.035% (WRMS) According to DIN 45500 0.1%
Automatic stop system:	Full auto stop
Automatic shut-off action time:	Less than 5s.
Pinch roller pressure:	125 ± 15 g (1.23 ± 0.15 N)
Take-up torque:	$35\ ^{+15}_{-5}$ g-cm ($0.34\ ^{+0.15}_{-0.049}$ mN · m)
FF & rewind torque:	110 ± 20 g-cm (1.078 ± 0.2 mN · m)
CUE/REV take-up torque:	110 ± 20 g-cm (1.078 ± 0.2 mN · m)
FF & rewind time:	60 ± 10s. (C-60)
Counter indication error:	0 ± 2 digit (C-60)
Cassette lid action time:	0.6 ± 0.4s. (at normal temperature)
Playback output: (TTA-161)	LINE 570 ± 20 mV DIN 570 ± 20 mV (Z model)
REC/PB output:	LINE 0VU ± 1.2 dB DIN 0VU ± 1.2 dB (Z model)
REC/PB distortion:	Less than 1.8% (METAL) Less than 1.8% (CrO_2) Less than 1.8% (NORMAL)
Playback noise: (Unweighted)	Less than 2.0 mV (NORMAL DOLBY NR C) Less than 1.3 mV (METAL, CrO_2, DOLBY NR C)
REC/PB SN ratio: (Unweighted)	(400 Hz, 0VU) More than 51/54 dB (METAL, CrO_2, DOLBY-NR C OFF/ON) More than 48/52 dB (NORMAL, DOLBY-NR C OFF/ON)
Channel separation: (1 kHz, 0VU)	More than 35 dB
Cross talk: (1 kHz, 0VU)	More than 60 dB
Erasing ratio: (125 Hz, 0VU + 10 dB, METAL)	More than 58 dB
Level drift: (10 kHz)	10 ± 1 dB
Level indication error:	3 ± 1 dB
Bias frequency:	85 kHz
Frequency response:	METAL 20 ~ 18,000 Hz CrO_2 20 ~ 17,000 Hz NORMAL 20 ~ 16,000 Hz
Recording system:	AC bias
Erase system:	AC erase
Motor:	DC Servomotor
Head:	DX head
Inputs:	MIC maximum input sensitivity: 1 mV (200Ω – 10 kΩ matched) LINE IN maximum input Sensitivity: 50 mV (more than 50 kΩ) DIN max sensitivity (Z model only): 0.1 mV/kΩ (3.3 kΩ)
Outputs:	LINE OUT/PLAY standard output level: 0.41V (0VU); suitable load impedance: more than 50 kΩ; Headphones: 8Ω
Test tape:	METAL TTA-119MX NORMAL TTA-119J CrO_2 TTA-119G TTT-119D (Z model)

- Specifications and external appearance are subject to change without due to product improvement.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
- Dolby and the □□ symbol are trademarks of Dolby laboratories Licensing Corporation.

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of serivce.

1. **No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.**
2. **No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.**
3. **When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.**
4. **The following matters shall be maintained as they are, when repairing.**
   1) Soldering of lead-wire ends
      * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
   2) Wiring and holding of lead-wires with wire-clips and binders
   3) Materials of lead-wires
      * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
   4) Location of all kinds of insulators
   5) Setting of voltage selector switch
      * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. **After repaired, the insulation resistance or leakage current shall be measured with 500 ± 5V D.C and shall be not less than 1MΩ.**

Measuring Point



6. **General instructions for mechanism repair**
   1) The heads, capstan and pinch roller shall be cleaned of good quality alcohol after repaired, because dirty heads shall cause distorted sounds while dirty capstan and pinch roller shall occur wow/flutter and take-up fault.
   2) Lubricants been stained the surfaces of transmitting portion of the belts, idlers, capstan and pinch roller shall be removed, because slippery and faulty tape travel shall be caused.
   3) When oiling, only one or two drops shall be applied so as not to run over and be dispersed. Note should be taken of the metal fitting for the capstan and rotating portions of the idlers and pinch roller, especially.
   4) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
   5) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, mulfunction and damage.

DISASSEMBLY INSTRUCTIONS

1. Removing Steel Cabinet.

1) Remove the 6 screws.

2. Removing Front Cabinet.

1) Open the cassette lid to remove the 3 knobs.
2) Remove the 11 screws. (See Figure 1-1)

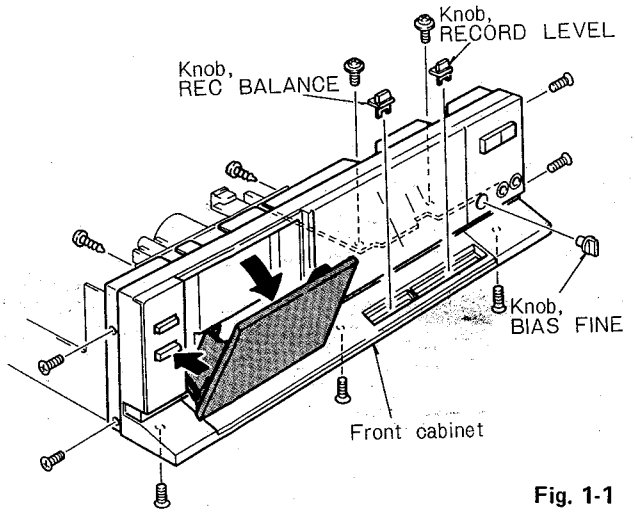


Fig. 1-1

3) Disconnect the 4 connectors of Main P.C.B. (See Figure 1-2)

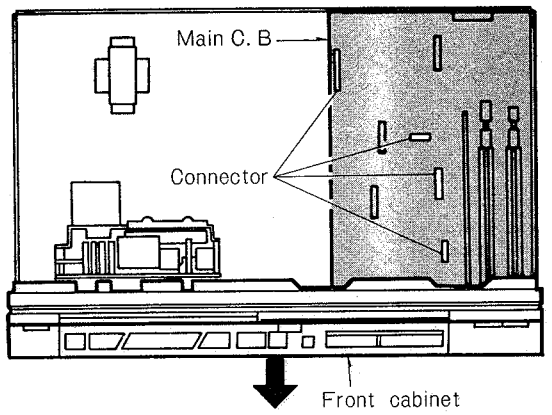


Fig. 1-2

3. Removing Main P.C.B.

1) Disconnect the 3 connectors and remove the 2 screws. (See Figure 2)

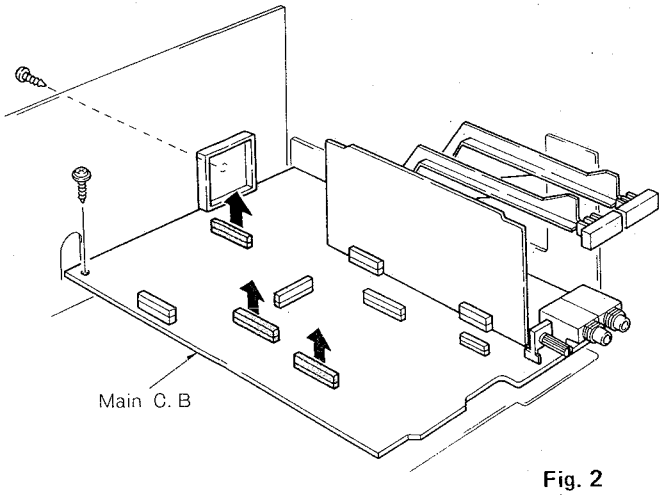


Fig. 2

4. Removing Mechanism.

1) Remove the 2 screws and lift up the mechanism. (See Figure 3)

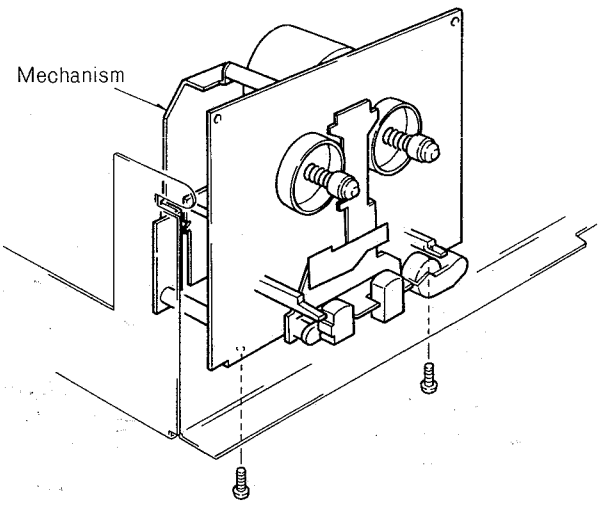


Fig. 3

5. Removing Reel Motor

1) Remove the 2 screws pushing the lever for brake release in the direction of the arrow. (See Figure 4)

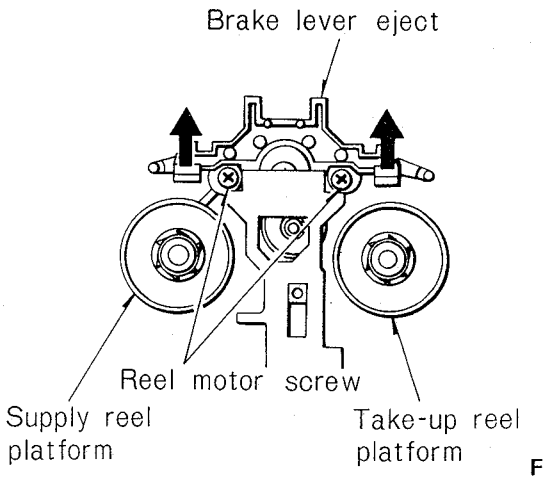
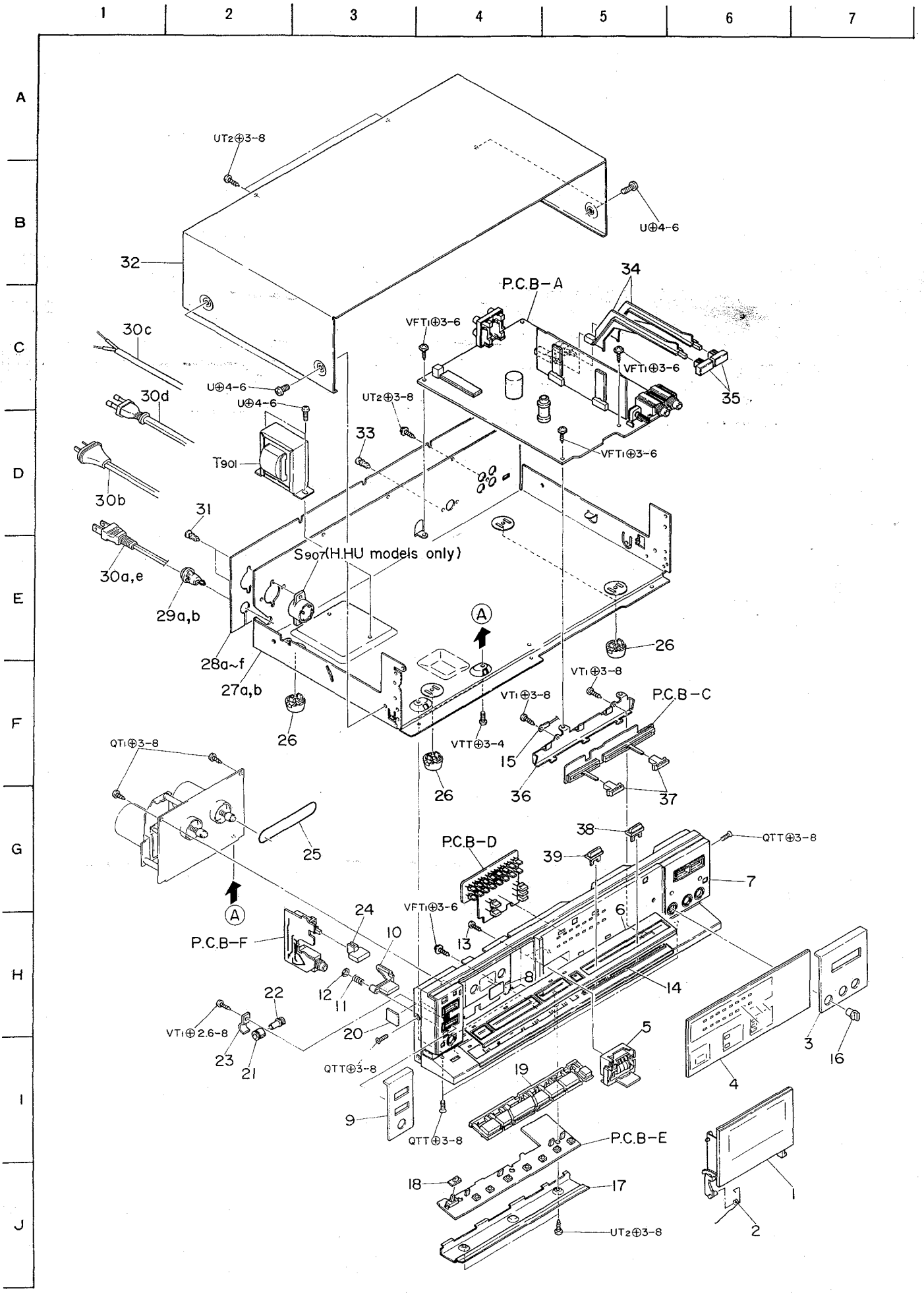


Fig. 4

EXPLODED VIEW-1



PARTS LIST

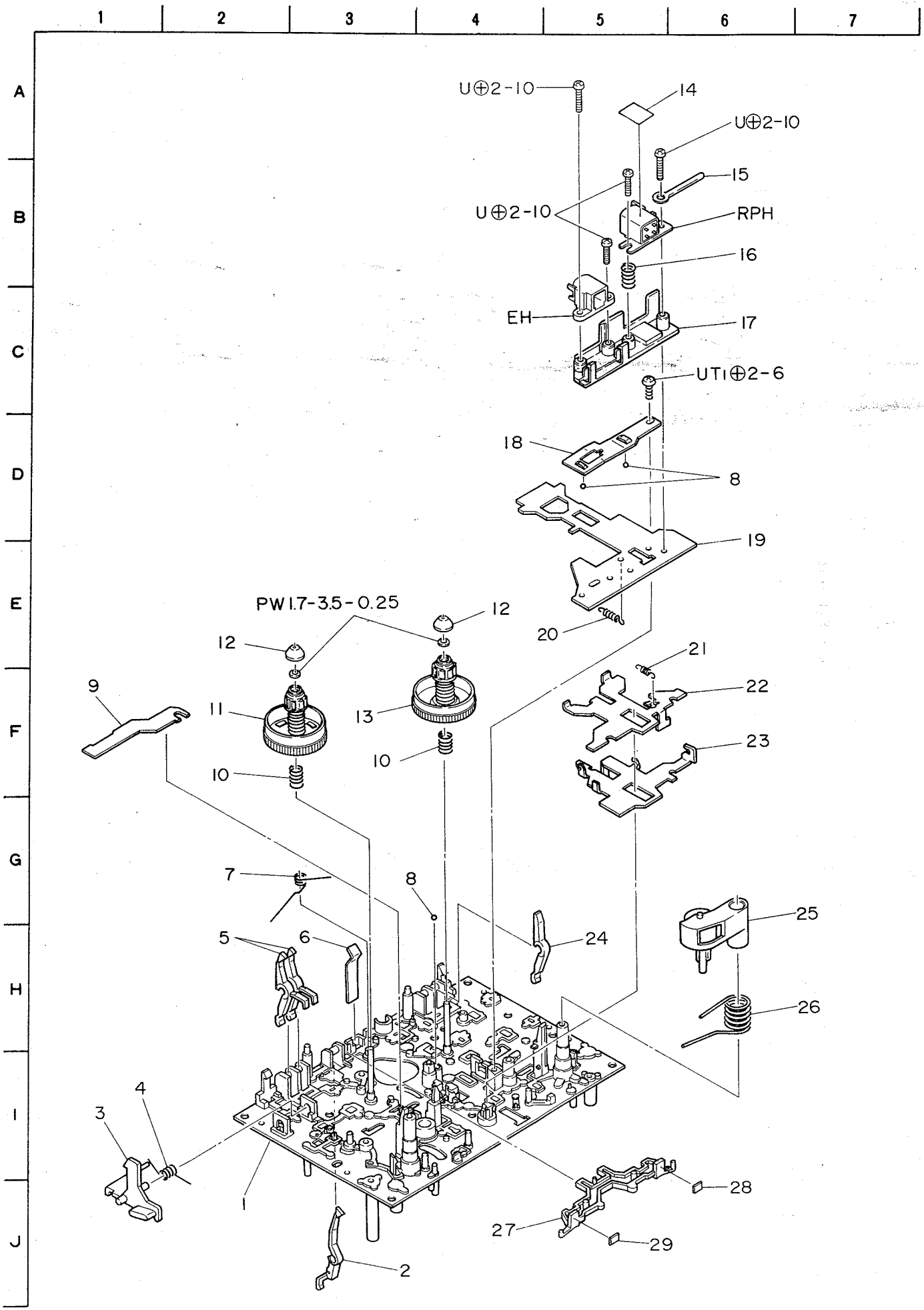
MECHANICAL PARTS LIST

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-194-016-11		Cassette box ass'y	*	1
1-2	82-194-206-01		T-spring, Cassette box	*	1
3~15	**82-194-017-11**		**Front Cabinet ass'y**	*	**1**
1-3	82-194-008-01		Front panel (R)	*	1
1-4	82-194-009-11		Meter, Window	*	1
1-5	87-040-166-01		Counter		1
1-6	82-194-011-11		Nameplate, Cabinet	*	1
1-7	82-194-001-01		Front cabinet	*	1
1-8	82-648-025-01		Lavel, Tape indication	HS-F1	1
1-9	82-194-007-01		Front panel (L)	*	1
1-10	82-194-003-01		Eject button	*	1
1-11	82-194-204-01		C-spring, Eject	*	1
1-12	87-081-903-01		Stopper ring, CS-2		1
1-13	87-511-074-21		VFT_1 +2.6 −8		2
1-14	82-194-012-01		Guide, VR	*	1
1-15	82-194-656-01		Lug terminal ass'y	*	1
1-16	82-785-026-01		Knob	CX-50	1
1-17	82-194-013-01		Bottom cover	*	1
1-18	82-194-004-01		Knob, Timer	*	1
1-19	82-194-002-01		Touch Key	*	1
1-20	82-194-210-01		Sheet 15-15	*	1
1-21	82-175-207-11		Bearing, Oil damp	AD-3500	1
1-22	82-534-264-01		Gear, Oil damp		1
1-23	82-175-210-11		Holder, Oil damp	AD-3500	1
1-24	82-195-008-01		Push-button, POWER		1
1-25	82-470-225-11		Main belt		1
1-26	87-055-055-01		Foot		4
1-27a	82-194-201-01		Amp. chassis H (H, HU models only)	*	1
b	82-194-205-01		Amp. chassis E (E, K, G, Z models only)	*	1
c	82-194-208-01		Amp. chassis U (U model only)	*	1
1-28a	82-194-014-01		Jack plate H (H, HU models only)	*	1
b	82-194-018-01		Jack plate E (E model only)	*	1
c	82-194-019-01		Jack plate K (K model only)	*	1
d	82-194-020-01		Jack plate G (G model only)	*	1
e	82-194-022-01		Jack plate Z (Z model only)	*	1
f	82-194-034-01		Jack plate U (U model only)	*	1
1-29a	87-085-184-01		Cord bushing D (H, HU, U models only)		1
b	87-085-185-01		Cord bushing (E, K, G, Z models only)		1
1-30a	87-034-958-01		AC power cord (H, HU models only)		1
b	87-034-892-01		AC power cord AS (G model only)		1
c	87-034-975-01		AC power cord K (K model only)		1
d	87-034-877-01		AC power cord E (E, Z models only)		1
e	87-034-578-01		AC power cord U (U model only)		1
1-31	87-085-090-01		Nylon rivet 3–6.5 (H, HU models only)		2
1-32	82-194-015-01		Steel Cabinet	*	1
1-33	87-084-063-01		Nylon rivet 3–5.5 (Z model only)		2
1-34	82-324-208-41		Rod, Dolby		2
1-35	82-194-025-01		Knob, Selector	*	2
1-36	82-194-202-01		Holder, Circuit board	*	1
1-37	82-194-203-01		Slider, Volume	*	2
1-38	82-194-005-01		Knob, REC	*	1
1-39	82-194-006-01		Knob, BALANCE	*	1

Part No.	Description
87-251-037-21	U +2 −10
87-251-070-21	U +2.6 −3
87-253-169-11	U +4 −6
87-261-075-21	V +2.6 −10
87-341-035-21	UT_1 +2 −6
87-351-034-21	VT_1 +2 −5
87-351-074-21	VT_1 +2.6 −8
87-351-095-21	VT_1 +3 −8
87-321-095-21	QT_1 +3 −8

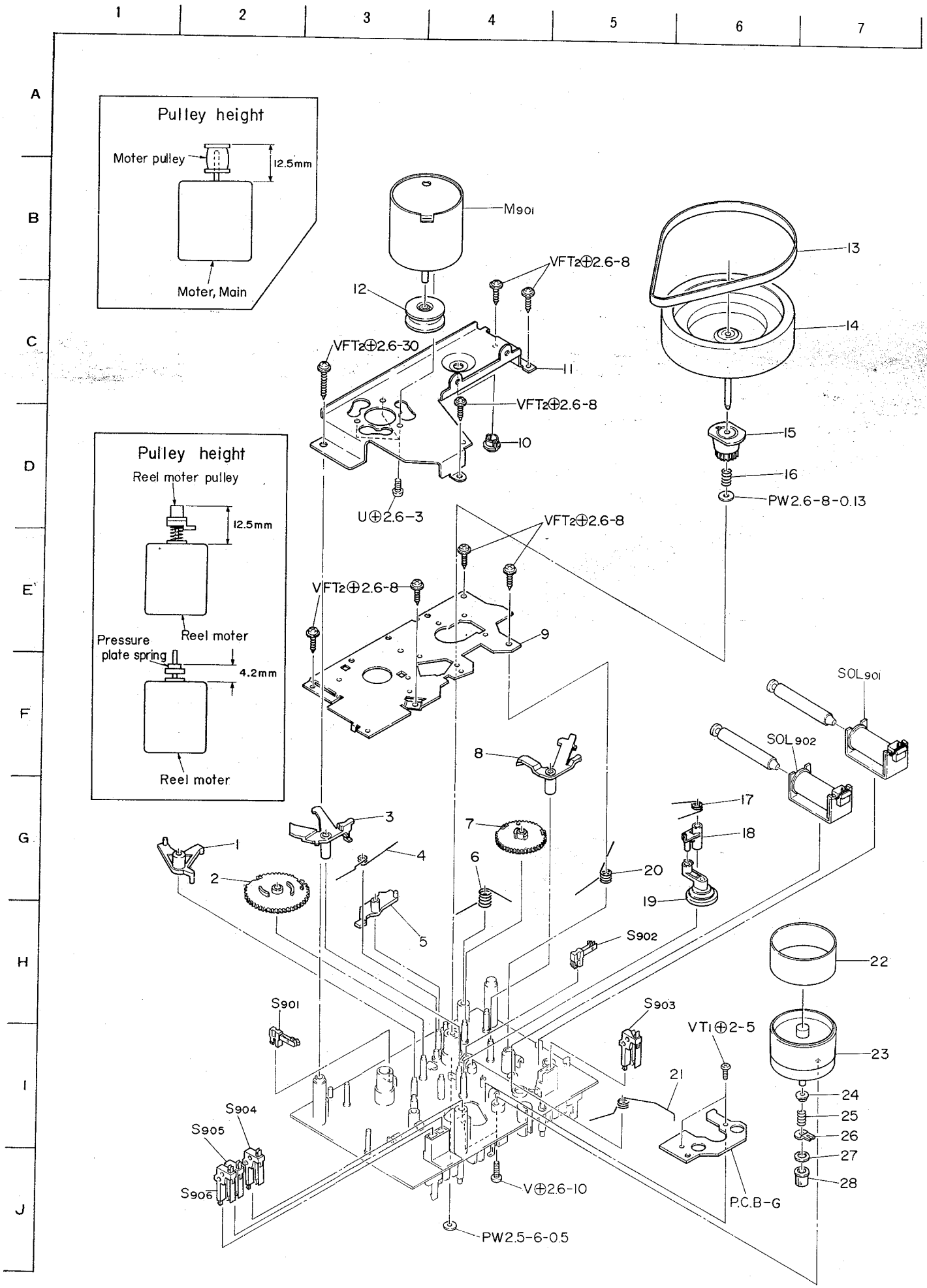
Part No.	Description
87-340-095-01	UT_2 +3 −8
87-067-020-01	VTT +3 −4
87-081-532-01	QTT +3 −8
87-511-094-21	VFT_1 +3 −6
87-512-074-01	UFT_2 +2.6 −8
87-081-808-01	PW1.7 −3.5 −0.25
82-416-358-01	PW2.5 −6 −0.5
87-067-652-01	PW2.6 −8 −0.13

EXPLODED VIEW-2



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
2-1	81-501-201-31		Outsert chassis ass'y		1	
2-2	81-505-242-11		Lever, METAL		1	
2-3	81-505-239-01		Lever, EJECT		1	
2-4	81-505-273-01		T-spring, Lid lock		1	
2-5	81-505-241-21		Lever, REC blocking		2	
2-6	81-505-260-01		P-spring, Pressure cassette		1	
2-7	81-505-268-01		T-spring, Slide brake		1	
2-8	87-073-005-01		Steel ball 2ϕ		3	
2-9	81-505-238-01		Blooking lever, EJECT		1	
2-10	81-505-274-01		C-spring, Supply reel platform		2	
2-11	81-505-275-01		Supply reel platform ass'y		1	
2-12	82-303-398-01		Cap, Take-up reel platform		2	
2-13	81-505-226-11		Take-up reel platform ass'y		1	
2-14	87-057-620-01		Label Head		1	
2-15	87-038-056-01		Wire binder 2.3		1	
2-16	81-505-262-01		C-spring, RPH		1	
2-17	81-505-209-01		Head base 2H		1	
2-18	81-505-259-01		P-spring, Actuating chassis		1	
2-19	81-505-206-11		Actuating chassis		1	
2-20	81-505-265-11		E-spring, Actuating chassis		1	
2-21	81-505-266-01		E-spring, PAUSE plate		1	
2-22	81-505-207-01		Plate, PAUSE		1	
2-23	81-505-208-01		Plate, Pinch lever		1	
2-24	81-505-240-21		Lever, Cassette sensor		1	
2-25	81-505-210-21		Pinch lever ass'y		1	
2-26	81-505-267-01		T-spring, Pinch F		1	
2-27	81-505-236-11		Lever, Slide brake		1	
2-28	81-505-315-01		Felt, 6–3–2		1	
2-29	81-505-313-01		Felt, 6–3–3.3		1	

EXPLODED VIEW-3



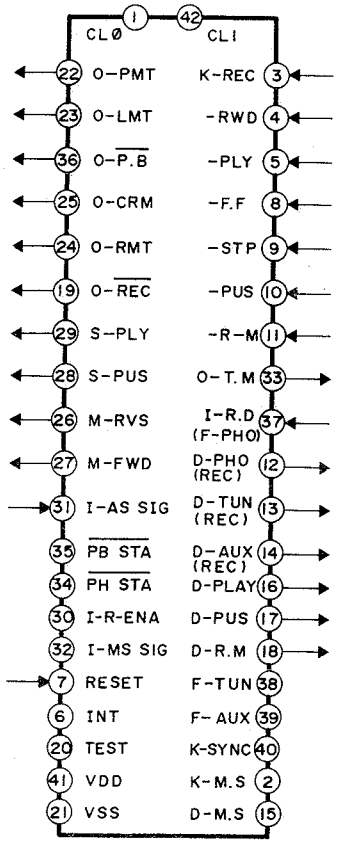
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
3-1	81-505-230-01		Lever, PLAY		1	
3-2	81-505-234-01		Gear, PLAY cam		1	
3-3	81-505-231-01		Trigger lever, PLAY		1	
3-4	81-505-272-01		T-spring, Cam		1	
3-5	81-505-232-01		Lever, PAUSE		1	
3-6	81-505-283-01		T-spring, PAUSE lever		1	
3-7	81-505-235-01		Gear, PAUSE cam		1	
3-8	81-505-233-01		Trigger lever, PAUSE		1	
3-9	81-505-204-11		Chassis mechanism B		1	
3-10	82-585-326-11		Thrust bearing B		1	
3-11	81-505-205-01		Holder, Motor		1	
3-12	81-505-245-01		Motor pully 2—10.68		1	
3-13	81-505-247-01		Rubber belt, Flywheel		1	
3-14	81-505-223-21		Flywheel ass'y		1	
3-15	81-505-225-01		Gear, Flywheel		1	
3-16	81-505-261-01		C-spring, Flywheel F		1	
3-17	81-505-282-01		T-spring, FR idler		1	
3-18	81-505-254-11		FR idler lever A		1	
3-19	81-505-250-31		FR idler ass'y		1	
3-20	81-505-271-01		T-spring, Trigger lever		1	
3-21	81-505-269-01		T-spring, Pinch plate		1	
22~28	**09-047-198-01**		**Reel motor ass'y**		**1**	
3-22	81-505-606-01		Shield plate		1	
3-23	81-505-604-11		Reel motor		1	
3-24	81-505-289-01		Pressure plate spring		1	
3-25	81-505-290-01		C-spring, FR idler C		1	
3-26	81-505-287-11		FR idler lever C		1	
3-27	81-505-328-01		Felt, 4.5-7.2-1.0		1	
3-28	81-505-257-01		Pully, Reel motor		1	

LM6402A-133 Port table

Pin No.	Port	Function
①, ㊷	CLϕ, CLI	Clock signal
②	K-MS	Set to the MS mode when the input is at "HIGH" level.
③	K-REC	Mechanism control REC KEY input.
④	K-RWD	Mechanism control RWD KEY input. When S810 is set to ON at "HIGH" level during output of the O-$\overline{\text{T.M SW}}$ "LOW" level, timer repeat play is done.
⑤	K-PLY	Mechanism control PLAY KEY input.
⑦	$\overline{\text{RESET}}$	MPU is reset and all the output ports are set open when inputting the "LOW" level (1.2V or less).
⑧	K-F.F	Mechanism control FF key input. When S810 is set to ON at "HIGH" level during output of the O-$\overline{\text{T.M SW}}$ "LOW" level, timer REC operation is done.
⑨	K-STOP	Mechanism control STOP KEY input. Cassette switch input.
⑩	K-PAUSE	Mechanism control PAUSE KEY input.
⑪	K-R,M	Mechanism control REC MUT KEY input.
⑫	D-PHONO REC	Outputs "LOW" level during PHONO REC.
⑬	D-TUNER REC	Outputs "LOW" level during TUNER REC.
⑭	D-AUX REC	Outputs "LOW" level during AUX REC.
⑮	D-MS	Outputs the "LOW" level for flashing during MS operation.
⑯	D-FWD	Mechanism control PLAY display.
⑰	D-PAUSE	Mechanism control PAUSE display.
⑱	D-R,M	Mechanism control REC. MUT display.
⑲	O-REC	Outputs "LOW" level during the REC mode.
㉑	Vss	Vss (power pin)
㉒	O-PMT	Set to the "HIGH" level for 2 sec. after POWER ON, and then outputs the "LOW" level.
㉓	O-LMT	LINE MUTE (LINE OUT MUT)
㉔	O-RMT	REC MUTE (REC AMP muting)
㉕	O-CRM	Set to the "HIGH" level only during CUE REVIEW.
㉖	M-RVS	Sub-motor reverse rotation output.
㉗	M-FWD	Sub-motor forward rotation output.
㉘	S-PAUSE	PAUSE level drive output.
㉙	S-PLAY	Differential chassis drive output.

Pin No.	Port	Function
㉚	I-REC ENA.	Safety switch input. "HIGH" level recording possible.
㉛	I-A.S-SIG	AUTO STOP signal input.
㉜	I-M,S-SIG	MUSIC SCAN signal input.
㉝	O-$\overline{\text{T.M SW}}$	Set to the "LOW" level instantaneously during POWER ON, during AUTO STOP in PLAY, during AUTO STOP in RWD. Outputs the "LOW" level instantaneously.
㉞	O-$\overline{\text{PHONO·START}}$	(30ms) when the PHONO REC key is input. Outputs the "LOW" level instantaneously.
㉟	O-$\overline{\text{P.B START}}$	When changing over to PLAY, PLAY PAUSE from other modes.
㊱	O-$\overline{\text{P.B}}$	Set to the "LOW" level in the ordinary mode (during PLAY) and "HIGH" level (Dolby IC record/play selection) during recording.
㊲	F-PHONO	PHONO FUNCTION KEY input. PHONO START when this input and the REC KEY input are done simultaneously
㊳	F-TUNER	TUNER FUNCTION KEY input.
㊴	F-AUX	AUX FUNCTION KEY input.
㊵	K-SYNC	PLAY SYNC input effective only during PHONO REC.
㊶	V_{DD}	V_{DD} (power pin).

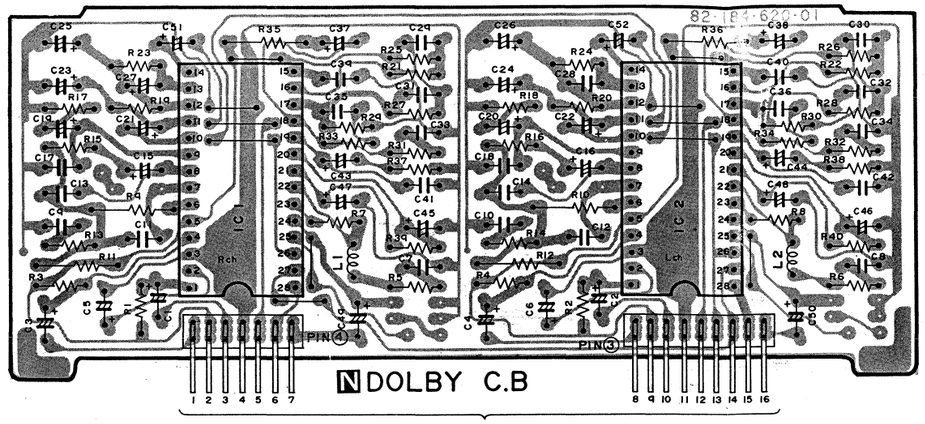
IC201
LM6402A-133



■ACCESSORIES/PACKAGE RIST

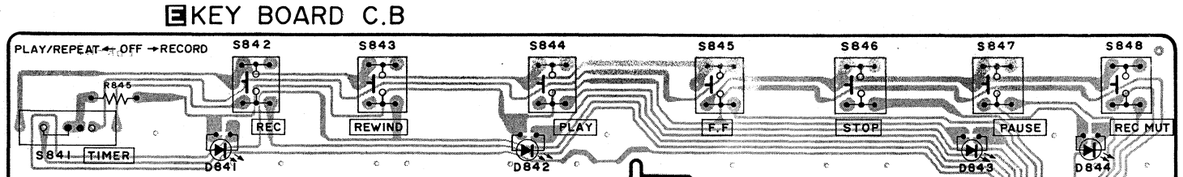
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1	82-194-854-01		Printed indiv., Packing	*	1	
2	82-194-852-01		Front cushion, Printed indiv.	*	1	
3	82-194-853-01		Rear cushion, Printed indiv.	*	1	
4	87-051-131-11		Poly-vinyl sack (H, HU models only)		1	
5	87-051-135-11		Poly-vinyl sack (E, K, G, Z models only)		1	
6	87-056-627-01		Poly-vinyl sack		1	
7	82-194-901-01		Instructions booklet	*	1	
8	87-051-171-11		Poly-vinyl sack		1	
9	87-056-008-11		Label, AC power cord (K model only)		1	
10	87-056-009-51		Distributors list (H, E, K, G, Z models only)		1	
11	87-056-045-01		Guarantee card (HU, U models only)		1	
12	87-056-057-01		Service station list (HU, U models only)		1	
13	87-056-059-01		Guarantee card		1	
14	86-944-012-01		Connection cord CW-129BSK		2	
15	87-032-845-01		Siemens plug (H model only)		1	
16	87-056-050-01		Safety instruction (U model only)		1	

WIRING–1

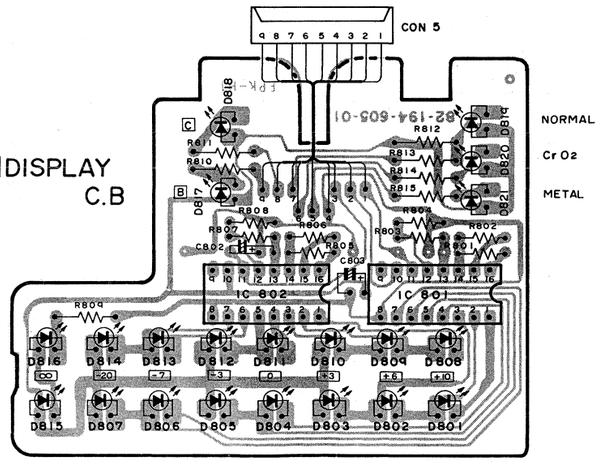


A MAIN C.B

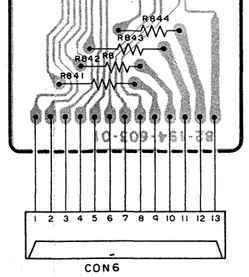
N DOLBY C.B

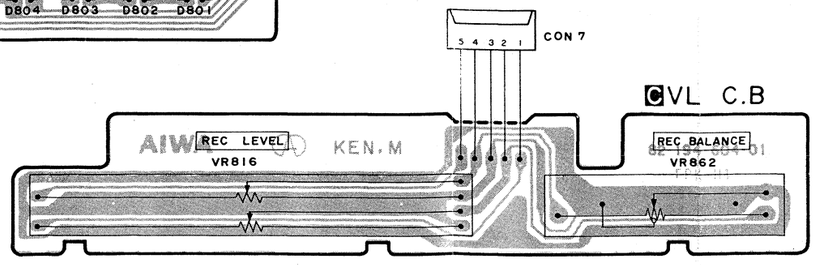


E KEY BOARD C.B



D DISPLAY C.B

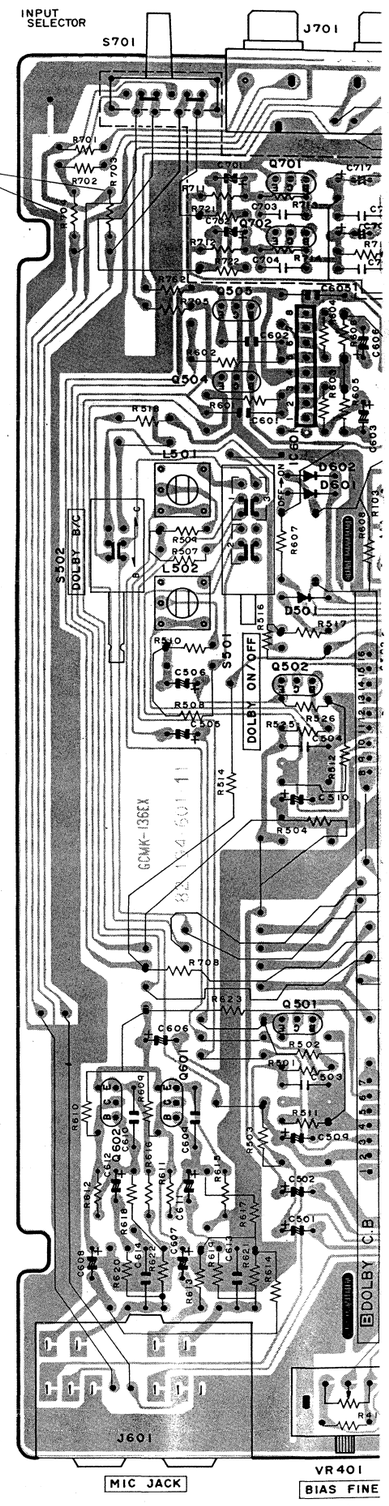


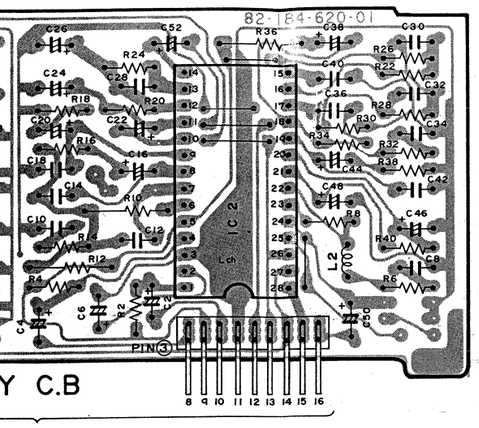


C VL C.B

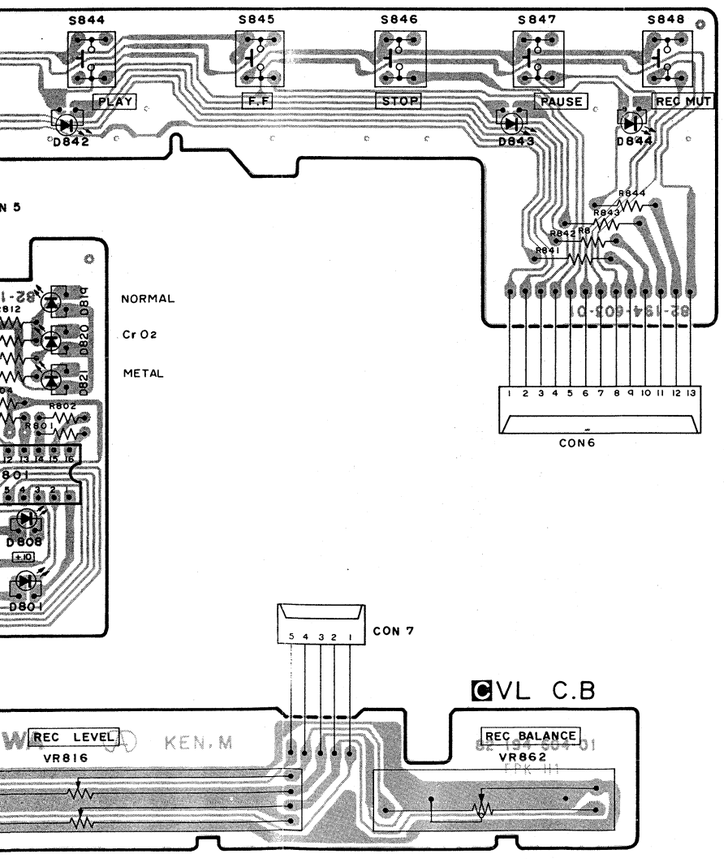
"Z" MODEL ONLY

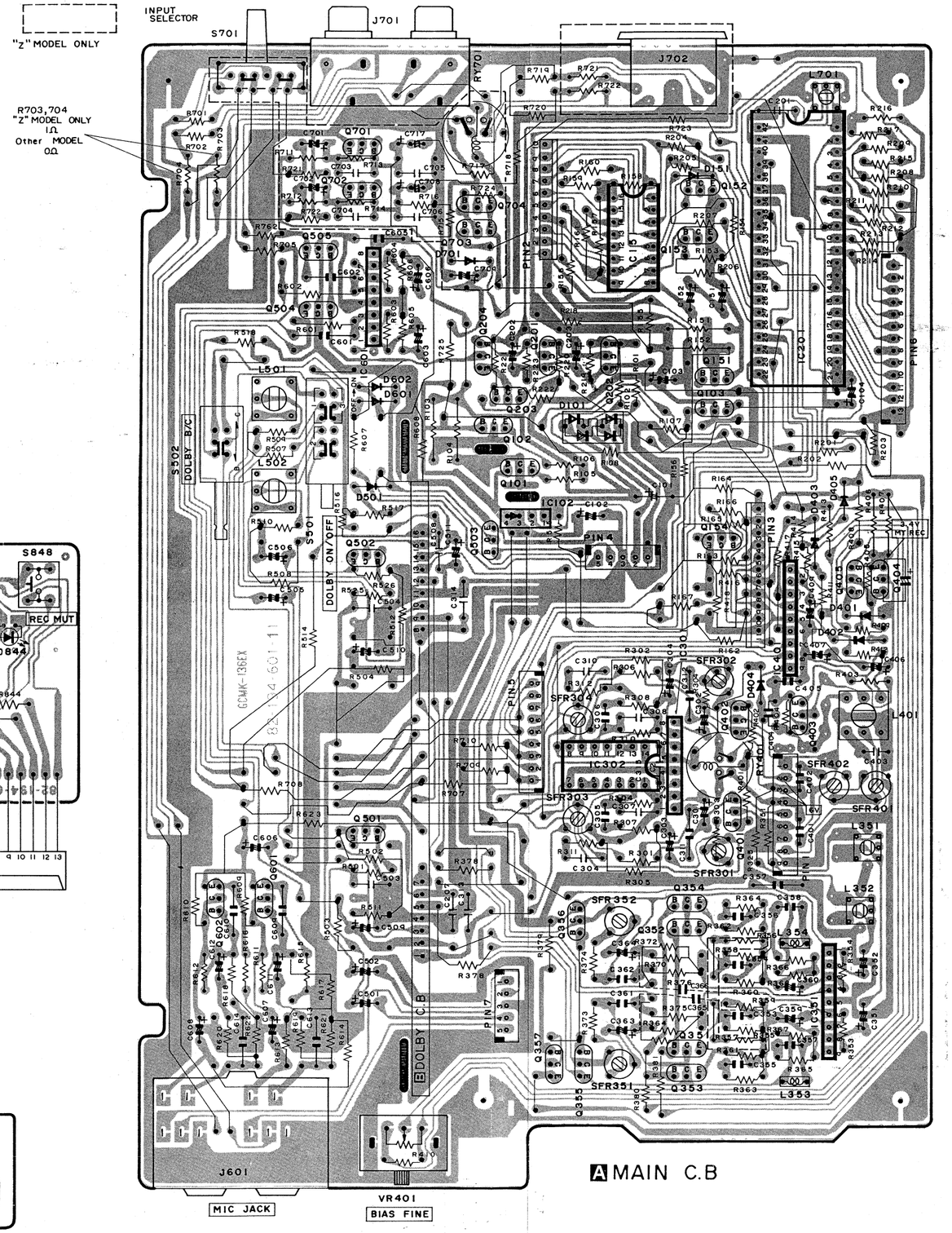
R703,704
"Z" MODEL ONLY
1Ω
Other MODEL
0Ω




82-184-620-01
IC2
Lch
L2
PIN③
Y C.B

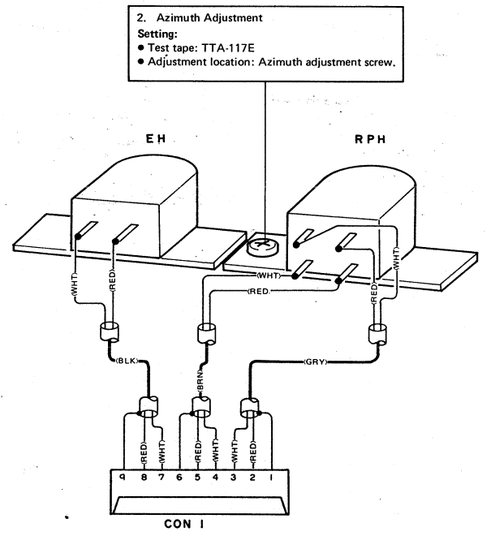
MAIN C.B


S844
S845
S846
S847
S848
PLAY
F.F
STOP
PAUSE
REC MUT
D842
D843
D844
NORMAL
Cr O2
METAL
CON6
CON 7
5 4 3 2 1
REC LEVEL
VR816
REC BALANCE
VR862
CVL C.B

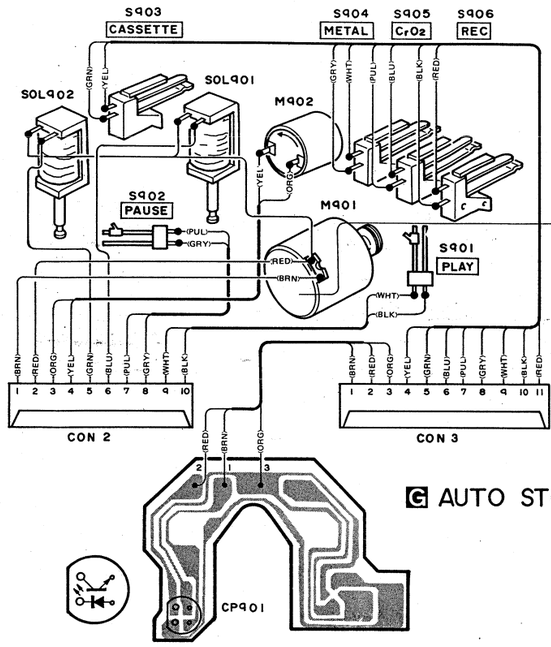

"Z" MODEL ONLY
INPUT SELECTOR
S701
J701
J702
R703,704
"Z" MODEL ONLY
1Ω
Other MODEL
0Ω
L701
IC201
IC301
IC401
IC302
IC102
IC20
S502
DOLBY B/C
S501
ON/OFF
DOLBY C.B
GCWK-136EX
82-184-601-11
J601
MIC JACK
VR401
BIAS FINE
A MAIN C.B

WIRING–2

ADJUSTMENT

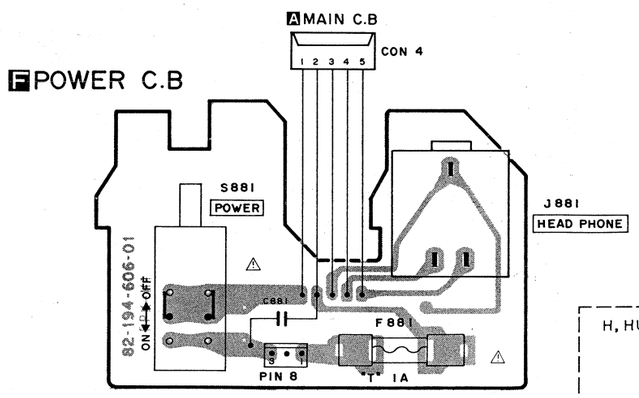


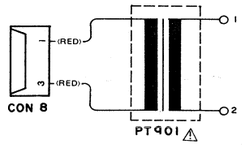
2. Azimuth Adjustment
Setting:
- Test tape: TTA-117E
- Adjustment location: Azimuth adjustment screw.

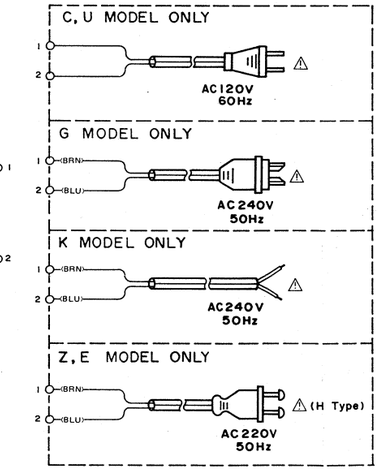


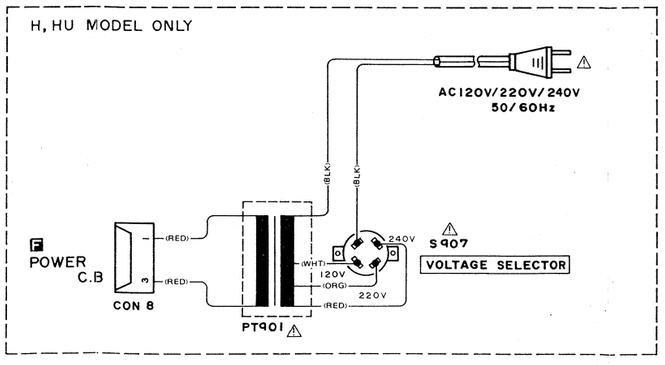
1. Tape Speed Adjustment
Setting:
- Adjustment location: SFR of motor

G AUTO STOP C.B









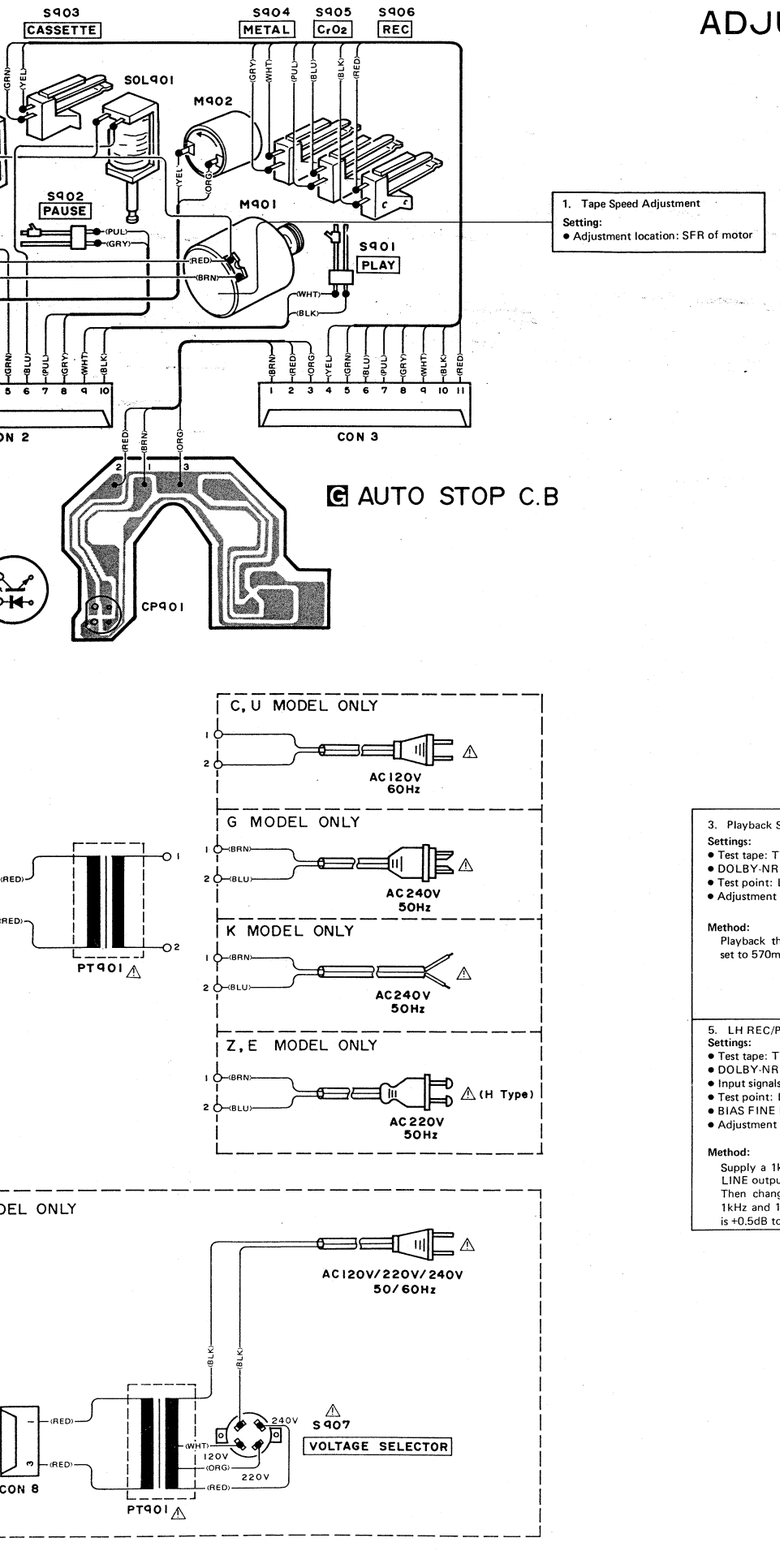
3. Playback Sensitivity Adjustment
Settings:
- Test tape: TTA-161
- DOLBY-NR: OFF
- Test point: LINE OUT
- Adjustment locations: SFR301 (Lch)
  SFR302 (Rch)

Method:
Playback the test tape and adjust so that the LINE output is set to 570mV.

5. LH REC/PB Frequency Characteristics Adjustment
Settings:
- Test tape: TTA-119J
- DOLBY-NR: OFF
- Input signals: LINE IN 1kH/10kHz (1V)
- Test point: LINE OUT
- BIAS FINE knob: CENTER
- Adjustment locations: SFR401 (Lch)
  SFR402 (Rch)

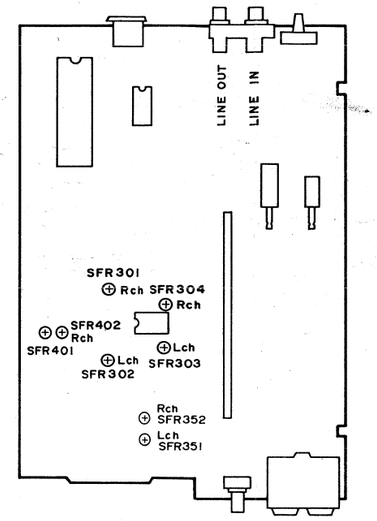
Method:
Supply a 1kHz signal and adjust the recording level so that the LINE output is 40mV.
Then change in TAPE position, recording and playback the 1kHz and 10kHz signals and adjust so that the output of 10kHz is +0.5dB to 1dB based on the 1kHz output.

ADJUSTMENT



G AUTO STOP C.B

A MAIN C.B



3. Playback Sensitivity Adjustment **Settings:** • Test tape: TTA-161 • DOLBY-NR: OFF • Test point: LINE OUT • Adjustment locations: SFR301 (Lch) SFR302 (Rch) **Method:** Playback the test tape and adjust so that the LINE output is set to 570mV.	4. Playback Frequency Characteristics Adjustment **Settings:** • Test tape: TTA-117E • DOLBY-NR: OFF • Test points: LINE OUT • Adjustment locations: SFR303 (Lch) SFR304 (Rch) **Method:** Playback the test tape and adjust so that the output of 10kHz is 0.6dB to 1.0dB based on the 1kHz output.
5. LH REC/PB Frequency Characteristics Adjustment **Settings:** • Test tape: TTA-119J • DOLBY-NR: OFF • Input signals: LINE IN 1kH/10kHz (1V) • Test point: LINE OUT • BIAS FINE knob: CENTER • Adjustment locations: SFR401 (Lch) SFR402 (Rch) **Method:** Supply a 1kHz signal and adjust the recording level so that the LINE output is 40mV. Then change in TAPE position, recording and playback the 1kHz and 10kHz signals and adjust so that the output of 10kHz is +0.5dB to 1dB based on the 1kHz output.	6. LH REC/PB Sensitivity Adjustment **Settings:** • Test tape: TTA-119J • DOLBY-NR: OFF • BIAS FINE knob: CENTER • Input signal: 1kHz (1V) • Adjustment locations: SFR351 (Lch) SFR352 (Rch) **Method:** Supply a 1kHz signal and adjust the recording level so that the LINE output is 40mV. Recording and playback the signal and adjust so that the tape output is 40mV.

ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
≪MAIN CIRCUIT BOARD SECTION≫		
PCB-A	82-194-601-01	Main circuit board
IC102	87-020-080-01	IC, L78N12
⚡IC201	82-189-640-01	IC, LM6402A-133
IC301	87-027-910-01	IC, μPC1228H
⚡IC302	87-027-656-01	IC, TC4066BP
IC351	87-027-986-01	IC, NJM4560S
IC401	87-020-079-01	IC, TD62555S
IC151	87-027-909-01	IC, M54523P
IC801	87-027-895-01	IC, M5218L
Q101,102,151	89-414-064-51	Transistor, 2SD1406Y (GR)
Q103	89-318-155-01	Transistor, 2SC1815 (GR)
Q152,153	89-109-521-01	Transistor, 2SA952K
Q154,202, 357	89-110-155-01	Transistor, 2SA1015 (GR)
Q201,203, 204,351, 352,353, 354,404, 405,501	89-309-456-01	Transistor, 2SC945L (P)
Q352,354, 355,356, 401,402, 403,504, 505	89-413-023-01	Transistor, 2SD1302S
Q601,602	89-322-406-01	Transistor, 2SC2240 (BL)
Q701,702 703,704	89-322-406-01	Transistor, 2SC2240 (BL) (Z model only)
D101	87-027-376-01	Diode, 1B4B4I
D151,401, 402,403, 404,405, 501,601, 602	87-027-097-01	Diode, 1S1555
D701	87-027-097-01	Diode, 1S1555 (Z model only)
L351,352	82-194-633-01	Trap coil, 85K
L353,354	82-194-634-01	Coil, 10mH
L401	82-194-632-01	Bias OSC coil
L501,502	82-187-601-01	MPX filter
L701	82-189-642-01	OSC coil
SFR301,302	87-021-734-01	Semi-fixed resistor, 100Ω-B
SFR303,304	87-021-746-01	Semi-fixed resistor, 100kΩ-B
SFR351,352	87-021-739-01	Semi-fixed resistor, 2.2kΩ-B
SFR401,402	87-021-745-01	Semi-fixed resistor, 47kΩ-B
S501	87-031-788-01	Push-switch (DOLBY ON/OFF)
S502	87-031-787-01	Push-switch (DOLBY B/C)
S701	87-031-752-01	Slide switch (INPUT SELECTOR) (Z model only)
VR401	82-194-631-01	Volume, 50kΩ-B (BIAS FINE)
J601	87-049-305-01	Jack, 6.3φ (MIC)
J701	87-049-301-01	Pin jack, 4P (LINE IN, LINE OUT)
J702	87-049-079-01	DIN socket, 5P (Z model only)
RY701	87-045-202-01	Relay, Reed RP-13A (Z model only)
PIN1,5	87-049-279-01	Pin, 9P
PIN2	87-049-280-01	Pin, 10P
PIN3	87-049-281-01	Pin, 11P
PIN4	87-049-275-01	Pin, 5P
PIN6	87-049-283-01	Pin, 13P
		< **Capacitors** >
C101	82-194-657-01	2200μF 25V
C301,302	87-015-954-01	10μF 16V Electrolytic LL
C361,362	88-707-869-81	0.068μF TF
C401	87-014-071-01	3900pF PP
C501,502	87-015-951-01	1μF 50V Electrolytic LL

Symbol No.	Part No.	Description
≪DOLBY-NR CIRCUIT BOARD SECTION≫		
	87-027-905-01	Dolby unit 2H ass'y
IC1,2	87-027-862-01	IC, HA12038
L1,2	87-005-155-01	Coil, 36mH
PIN	87-049-117-01	Pin, 7P
PIN	87-049-119-01	Pin, 9P
		< **Resistors** >
R9,10	87-025-271-01	5.1kΩ 1/4W Metal film
R11,12	87-025-295-01	15kΩ 1/4W Metal film
R35,36	87-025-296-01	56kΩ 1/4W Metal film
		< **Capacitors** >
C15,16	87-015-617-01	10μF 16V Electrolytic LL
C21,22,23, 24,45,46	87-015-366-01	0.15μF 10V Aluminum solid
≪VL CIRCUIT BOARD SECTION≫		
PCB-C	*	VL circuit board
VR861	82-194-641-01	Volume, 50kΩ-A (REC LEVEL)
VR862	82-194-642-01	Volume, 150kΩ-W (REC BALANCE)
CON7	89-051-028-01	Connector 5P ass'y
≪DISPLAY CIRCUIT BOARD SECTION≫		
PCB-D	*	Display circuit board
IC801,802	87-027-879-01	IC, AN6882
D801,802, 803,808, 809,810	87-027-542-01	LED, LN217RP (LEVEL)
D804,805, 806,807, 812,813, 814,815, 816	87-027-543-01	LED, LN317GP (LEVEL)
D817,819	87-020-009-01	LED, LN316GP (B, LH)
D818,821	87-020-008-01	LED, LN216RP (C, METAL)
D820	87-020-010-01	LED, LN416YP (CrO_2)
CON5	89-051-030-01	Connector ass'y, 9P
≪KEY BOARD CIRCUIT BOARD SECTION≫		
PCB-E	*	Key board circuit board
D841,844	87-027-716-01	LED, GL-9PR22 (REC, REC MUT)
D842	87-027-758-01	LED, GL-9PG22 (PLAY)
D843	87-020-077-01	LED, GL-9HY22 (PAUSE)
S841	87-031-792-01	Slide switch (TIMER)
S842,843, 844,845, 846,847, 848	87-031-771-01	Tact switch (REC, REWIND, PLAY, FF, STOP, PAUSE, REC MUT)
		< **Capacitor** >
CON6	89-051-031-01	Connector ass'y, 13P
≪POWER CIRCUIT BOARD SECTION≫		
PCB-F	*	Power circuit board
⚠F881	87-035-222-01	Fuse, "T" 1A
	87-033-147-01	Fuse clamp
J881	87-049-297-01	Jack, 6.3φ (PHONE)
S881	87-031-805-01	Push-switch (POWER)
PIN8	87-049-273-01	Pin, 3P
CON4	89-051-029-01	Connector ass'y, 5P
≪AUTO STOP CIRCUIT BOARD SECTION≫		
PCB-G	81-505-605-01	Auto stop circuit board
CP901	87-027-644-01	Photo sensor, NJL-5141EA

Symbol No.	Part No.	Description
≪MISCELLANEOUS≫		
⚠PT901	82-194-611-01	Power transformer (H, HU models only)
⚠PT901	82-194-612-01	Power transformer (U model only)
⚠PT901	82-194-613-01	Power transformer (E, Z models only)
⚠PT901	82-194-614-01	Power transformer (K, G models only)
RPH	87-046-226-01	REC/PB head
EH	87-046-196-01	Erase head
M901	87-045-135-01	Motor, DC EG
M902	09-011-038-01	Reel motor
SOL901,902	81-505-603-01	Solenoid, 9ME-A
S901,902	81-505-601-01	Leaf switch (PLAY, PAUSE)
S903,906	81-505-607-01	Leaf switch (CASSETTE, REC)
S904,905	81-505-602-01	Leaf switch (CrO_2, METAL)
⚠S907	87-031-586-01	Rotary switch (VOLTAGE SELECTOR) (H, HU models only)
⚠	87-034-958-01	AC power cord (H, HU models only)
⚠	87-034-877-01	AC power cord (E, Z models only)
⚠	87-034-975-01	AC power cord (K model only)
⚠	87-034-892-01	AC power cord (G model only)
⚠	87-085-184-01	AC power cord bushing (H, HU, U models only)
	87-085-185-01	AC power cord bushing (E, K, G, Z models only)
CON1	81-505-631-11	Connector ass'y Head A
CON2	81-505-634-01	Connector ass'y Motor C
CON3	81-505-635-01	Connector ass'y Switch C

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 82-194-602-01
PCB-C 82-194-604-01
PCB-D 82-194-605-01
PCB-E 82-194-603-01
PCB-F 82-194-605-01

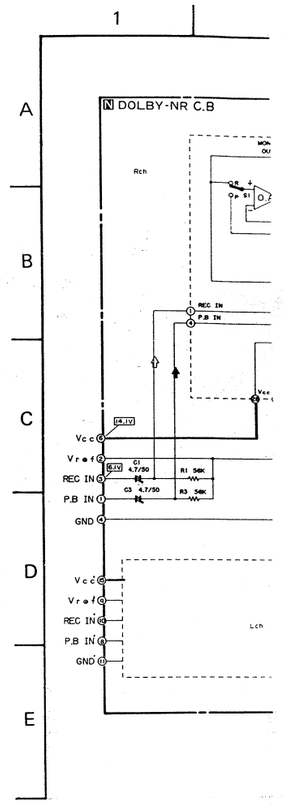
C-MOS IC handling precaution

The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (⚡)

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

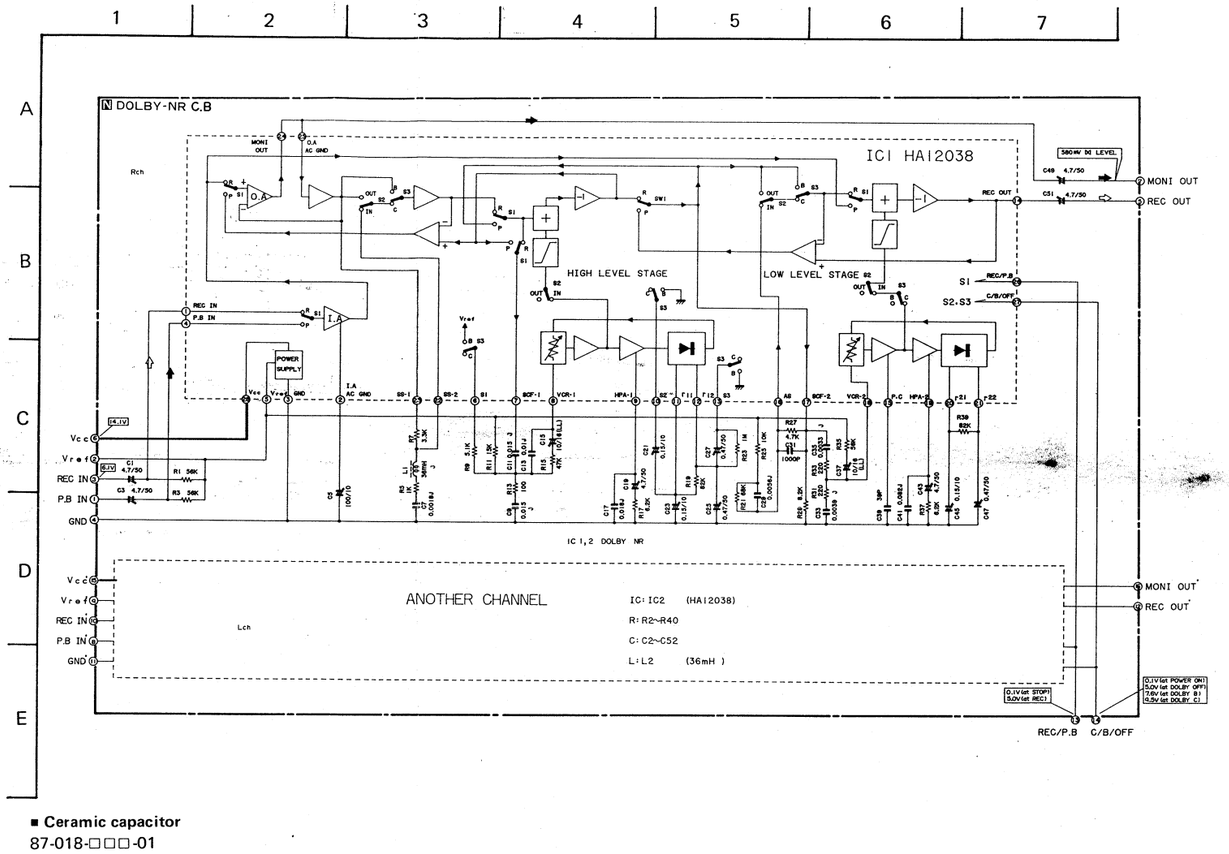


■ Ceramic capacitor
87-018-□□□-01

Capacitor	Parts cod
15P	012
270P	037
470P	040
1,000P	044
0.01	047

Description
ECTION ≫
unit 2H ass'y
12038
6mH
tors >
1/4W Metal film
1/4W Metal film
1/4W Metal film
citors >
16V Electrolytic LL
10V Aluminum solid
≫
cuit board
e, 50kΩ-A (REC LEVEL)
e, 150kΩ-W
BALANCE)
ctor 5P ass'y
TION ≫
circuit board
6882
N217RP (LEVEL)
N317GP (LEVEL)
N316GP (B, LH)
N216RP (C, METAL)
N416YP (CrO_2)
tor ass'y, 9P
SECTION ≫
oard circuit board
SL-9PR22
REC MUT)
SL-9PG22 (PLAY)
SL-9HY22 (PAUSE)
witch (TIMER)
witch (REC, REWIND,
FF, STOP, PAUSE, REC
citor >
tor ass'y, 13P
ION ≫
circuit board
T" 1A
amp
3φ (PHONE)
witch (POWER)
tor ass'y, 5P
ECTION ≫
op circuit board
ensor, NJL-5141EA

Symbol No.	Part No.	Description
	≪MISCELLANEOUS≫	
⚠PT901	82-194-611-01	Power transformer (H, HU models only)
⚠PT901	82-194-612-01	Power transformer (U model only)
⚠PT901	82-194-613-01	Power transformer (E, Z models only)
⚠PT901	82-194-614-01	Power transformer (K, G models only)
RPH	87-046-226-01	REC/PB head
EH	87-046-196-01	Erase head
M901	87-045-135-01	Motor, DC EG
M902	09-011-038-01	Reel motor
SOL901,902	81-505-603-01	Solenoid, 9ME-A
S901,902	81-505-601-01	Leaf switch (PLAY, PAUSE)
S903,906	81-505-607-01	Leaf switch (CASSETTE, REC)
S904,905	81-505-602-01	Leaf switch (CrO_2, METAL)
⚠S907	87-031-586-01	Rotary switch (VOLTAGE SELECTOR) (H, HU models only)
⚠	87-034-958-01	AC power cord (H, HU models only)
⚠	87-034-877-01	AC power cord (E, Z models only)
⚠	87-034-975-01	AC power cord (K model only)
⚠	87-034-892-01	AC power cord (G model only)
⚠	87-085-184-01	AC power cord bushing (H, HU, U models only)
	87-085-185-01	AC power cord bushing (E, K, G, Z models only)
CON1	81-505-631-11	Connector ass'y Head A
CON2	81-505-634-01	Connector ass'y Motor C
CON3	81-505-635-01	Connector ass'y Switch C



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Combination circuit board 82-194-602-01

PCB-C 82-194-604-01
PCB-D 82-194-605-01
PCB-E 82-194-603-01
PCB-F 82-194-605-01

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2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (⚠)

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

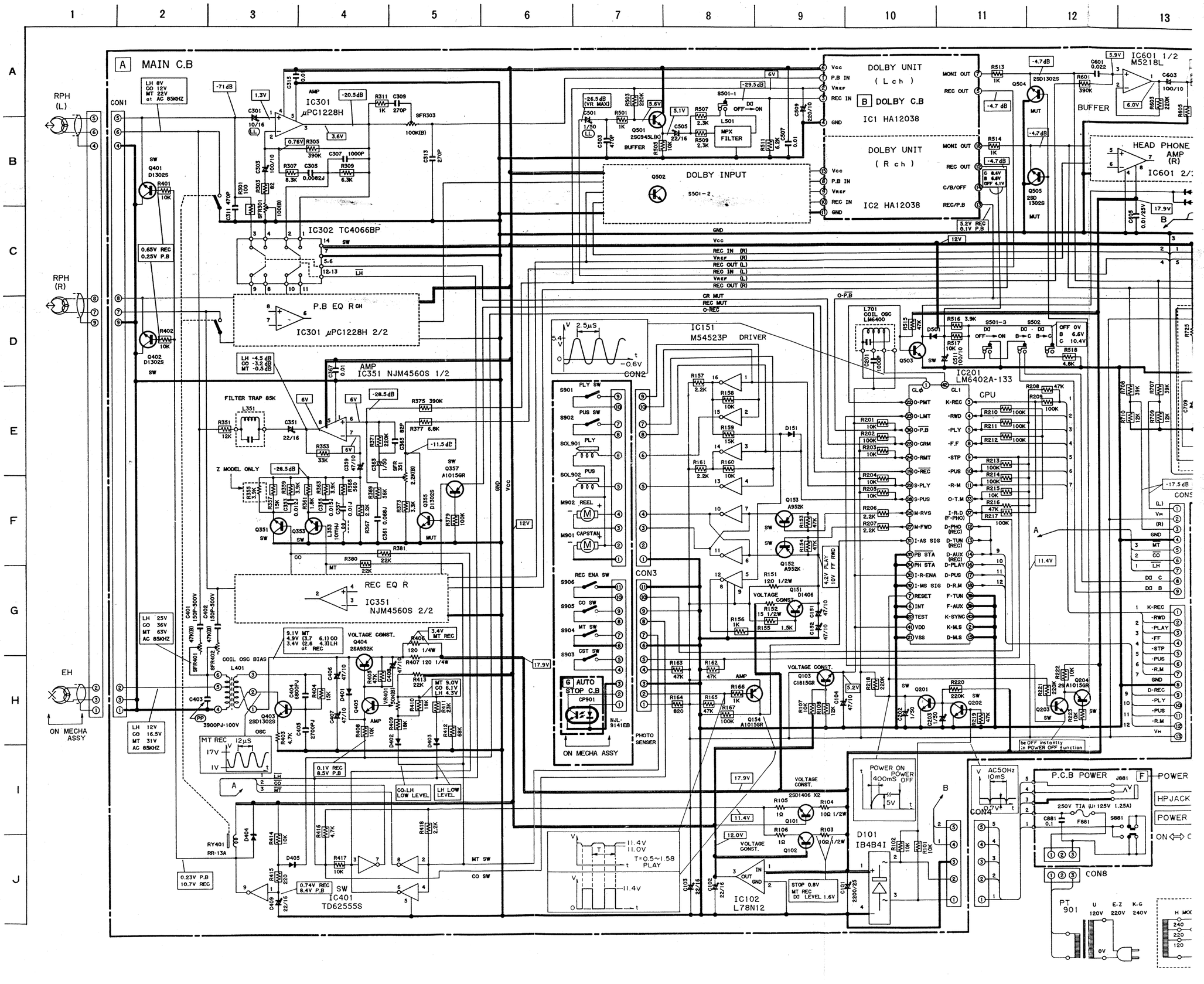
■ Ceramic capacitor

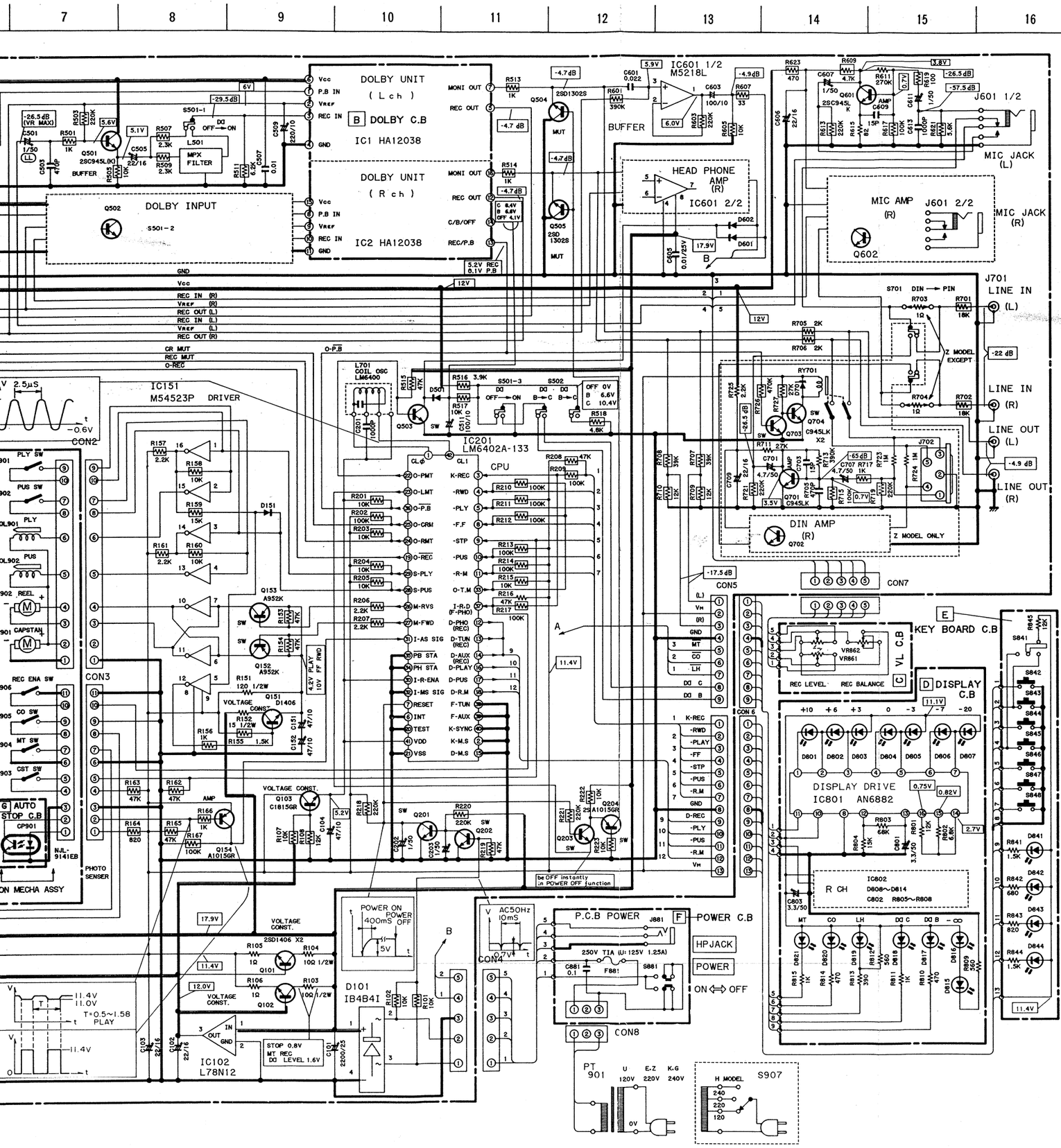
87-018-□□□-01

Capacitor	Parts code
15P	012
270P	037
470P	040
1,000P	044
0.01	047

AD-F330 K,G,Z

SCHEMATIC DIAGRAM





NOTES:

1) ■ B (+) power supply
2) ➡ Signal path
   ⇨ Rec path
3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
4) Resistors with no designation have a rated power of 1/4W and a tolerance of ±5%.
5) Capacitors with no designation have a dielectric strength of less than 50WV.
6) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
7) Ceramic capacitor symbols:
   - For temperature compensation (SL)
   - High dielectric constant system (YY)
   - High dielectric constant system (YW, YP, YZ)
   - Semiconductor ceramic
   - For temperature compensation (SH)
8) Expianation of symbols
   - (M) Mylar capacitor
   - (A) Aluminum solid capacitor
   - (PP) Polypropylene film capacitor
   - (BP) Bi-polarized capacitor
   - (LL) Low-leakage capacitor
   - (T) Tantalum capacitor
   - Printed resistor
   - Fuse resistor
   - Nonflammable resistor

⚠ Safety component symbol
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

This schematic diagram is subject to change without notice in the interests of improved performance.